

What is claimed is:

1           1.     A speech coding system comprising:  
2                 an encoder that encodes candidate pulse positions to encode an  
3             excitation signal, where the candidate pulse positions are defined by at least one track;  
4                 a decoder coupled to the encoder; and  
5                 a circuit coupled with the encoder and the decoder, where the circuit  
6             includes an algorithm that dynamically allocates the at least one track.

1           2.     The system according to claim 1 where the algorithm allocates the  
2             candidate pulse positions for the at least one track according to available information.

1           3.     The system according to claim 2 where the available information  
2             includes information selected from the group consisting of signal type information,  
3             adaptive codebook information and determined pulse positions.

1           4.     The system according to claim 3 where the algorithm determines a first  
2             fixed codebook if the signal type is approximately periodic and determines a second  
3             fixed codebook if the signal is non-periodic.

1           5.     The system according to claim 4 where the first fixed codebook  
2             includes at least one track and the second fixed codebook includes at least one track.

1           6.     The system according to claim 1 where the at least one track includes  
2             fixed candidate pulse positions.

1           7.     The system according to claim 1 where the at least one track includes  
2             dynamically allocated candidate pulse positions.

1           8.     The system according to claim 1 where the algorithm determines a  
2             position of a first pulse on the at least one track and then defines at least one candidate  
3             pulse position for the at least one track according to the determined pulse position of  
4             the first pulse.

1           9.     The system according to claim 8 where the algorithm defines the at  
2 least one additional candidate pulse position near the determined pulse position for the  
3 first pulse.

1           10.    The system according to claim 8 where the algorithm uses a pitch  
2 prediction contribution to derive at least one reference position of at least one main  
3 peak from a previously encoded signal to define the at least one additional candidate  
4 pulse position according to the at least one reference position.

1           11.    The system according to claim 10 where the circuit further includes an  
2 energy measure algorithm to derive the at least one main peak.

1           12.    The system according to claim 11 where the energy measure algorithm  
2 defines the at least one main peak at the position of the pitch prediction contribution  
3 including the highest energy.

1           13.    A speech coding system comprising:  
2               a codec that includes an encoder and a decoder, the encoder encodes  
3 candidate pulse positions to encode an excitation signal, where the candidate pulse  
4 positions are divided into at least one track; and  
5               a circuit coupled with the codec, where the circuit includes an  
6 algorithm to dynamically allocate candidate pulse positions according to available  
7 information.

1           14.    The system according to claim 13 where the available information  
2 includes information selected from the group consisting of signal type information,  
3 adaptive codebook information and determined pulse positions.

1           15.    The system according to claim 14 where the algorithm determines a  
2 first fixed codebook if the signal type is approximately periodic and determines a  
3 second fixed codebook if the signal is non-periodic.

1           16. The system according to claim 15 where the first fixed codebook  
2 includes at least one track and the second fixed codebook includes at least one track.

1           17. A method for dynamically coding a position of a pulsed signal in a  
2 speech coding system, comprising:

3                   determining a position of a first pulse on a first track;  
4                   dynamically defining at least one candidate pulse position for a second  
5 track according to the determined position of first pulse on the first track; and  
6                   determining a position of a second pulse on the second track according  
7 to the defined at least one candidate pulse position for the second track.

1           18. The method according to claim 17 further including defining the at  
2 least one additional candidate pulse position near the determined pulse position for the  
3 first pulse.

1           19. A method for dynamically coding a position of a pulsed signal in a  
2 speech coding system, the method comprising:

3                   determining a pitch prediction contribution from a past excitation  
4 signal;  
5                   determining positions of main peaks according to the pitch predication  
6 contribution; and  
7                   constructing candidate pulse positions for at least one dynamic track of  
8 a current sub-frame according to the determined positions of the main peaks.

1           20. The method of claim 19 further including defining candidate  
2 positions of a first pulse according to the constructed candidate pulse positions of  
3 the at least one dynamic track.

1           21. The method according to claim 19 further including using a pitch  
2 prediction contribution to derive positions of main peaks from a previously encoded  
3 signal.

1           22.    The method according to claim 21 where the circuit further includes an  
2   energy measure algorithm to derive the main peaks.

1           23.    The method according to claim 22 where the energy measure  
2   algorithm defines the main peaks at the positions of the pitch prediction  
3   contribution including the highest energies.